Title: Filter structure, filter panel comprising the filter structure and method for manufacturing the filter structure

## **IN THE CLAIMS**

Please amend the claims as follows:

1. (Currently Amended) <u>A pleatable</u> filter structure for use in a filter panel, comprising:

ion exchange particles distributed within a fibrous framework of the filter structure, wherein the filter structure is expanded by a moisture treatment which swells the ion exchange particles and causes a permanent expansion of the filter structure, the moisture treatment comprising exposure to a humid or water-containing environment; and

the expanded filter structure contains enough space to allow the ion exchange particles to swell or to be in a swelled state without additional expansion of the filter structure.

2. (Previously Presented) The filter structure of claim 1, wherein the fibrous framework comprises:

composite structural fibers comprising a first relatively higher melting component and a first relatively lower melting component;

composite thermoplastic fibers comprising a second relatively higher melting component and a second relatively lower melting component;

a thermally bonded, fibrous network; and

ion exchange particles thermally bonded to the composite thermoplastic fibers, wherein the first relatively higher melting component has a melting point at least 20°C higher than the first relatively lower melting component;

the composite thermoplastic fibers have a relatively smaller denier than the structural fibers;

the first relatively lower melting component bonds the structural fibers together at crossover points to stabilize the fibrous network;

the composite thermoplastic fibers are dispersed throughout the fibrous network and immobilized by thermal bonding thereto.

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3. (Previously Presented) The filter structure according to claim 1, wherein the expanded filter structure contains enough space to allow an increase of the ion exchange particle diameter of at least 38% as compared to dry particles.

- 4. (Previously Presented) The filter structure according to claim 3, wherein the expanded filter structure contains enough space to allow an increase of the ion exchange particle diameter of at least 47% as compared to dry particles.
- 5. (Canceled)
- 6. (Previously Presented) The filter structure according to claim 1, wherein the ion exchange particles are macroporous polymers.
- 7. (Previously Presented) The filter structure according to claim 1, wherein the load of ion exchange particles is 100-2000 g/m<sup>2</sup>.
- 8. (Previously Presented) The filter structure according to claim 1, wherein the ion exchange particles are monospherical and have a diameter of  $425-525 \mu m$ .
- 9. (Previously Presented) The filter structure according to claim 1, wherein the fibrous framework comprises thermally bonded fibers.
- 10. (Previously Presented) The filter structure according to claim 1, wherein the fibrous framework comprises:

a thermally bonded, fibrous network of coarse structural thermoplastic fibers; and fine thermoplastic fibers of relatively smaller denier than the structural fibers, wherein the fine thermoplastic fibers are dispersed throughout the fibrous framework and immobilized by thermal bonding boaded to the fibrous framework; and

the ion exchange particles are thermal bonded to the smaller denier composite

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thermoplastic fibers.

11. (Previously Presented) A filter panel comprising the filter structure according to claim 1,

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wherein the filter structure is pleated and fixed into a filter panel frame.

12. (Previously Presented) The filter panel of claim 11, wherein the pleated filter structure

has 0-25 pleats/dm.

13. (Previously Presented) The filter panel according to claim 11 wherein the height of the

pleats is 10-300 mm.

14. (Previously Presented) The filter panel according to claim 11, wherein the frame is made

of stainless steel or aluminium.

15. (Previously Presented) The filter panel according to claim 11, wherein the pleated filter

structure is fixed to the frame with a polyurethane adhesive, which has a total outgassing lower

than 10 µg/g, confirmed by thermal desorption gas chromatography mass spectroscopy (TD-GC-

MS), with TD performed at 50°C for 30 min and n-decane as external standard.

16. (Previously Presented) The filter panel according to claim 11, comprising exterior sealing

strips for avoiding air bypass, wherein the exterior sealing strips are made from a polymer having

a total outgassing lower than 10 µg/g, confirmed by thermal desorption gas chromatography mass

spectroscopy (TD-GC-MS) with TD performed at 50°C for 30 min and n-decane as external

standard.

17. (Currently Amended) A method Method of manufacturing [[the]] a filter structure according

to claim 1, comprising:

subjecting the pleatable filter structure to a moisture treatment which swells the ion

exchange particles and causes a permanent expansion of the filter structure, the expanded filter

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structure containing enough space to allow ion exchange particles to swell or to be in a swelled state without additional expansion of the filter structure, wherein the moisture treatment comprises exposure to a humid or water-containing environment.

- 18. (Original) The method of claim 17, wherein the fibers of the fibrous framework are stretched as a result of the swelling of the ion exchange particles, and remain stretched.
- 19. (Previously Presented) The method according to claim 17, wherein the filter structure is subjected to the moisture treatment until the ion exchange particles have reached a moisture content of at least 20% by weight.
- 20. (Previously Presented) The method according to claim 19, wherein the filter structure is subjected to the moisture treatment until the ion exchange particles have reached a moisture content of at least 30% by weight.
- 21. (Previously Presented) The method according to claim 17, wherein the ion exchange particles have a moisture content of less than 10% prior to the moisture treatment and present an increase in diameter during the moisture treatment of up to 38%.
- 22. (Previously Presented) The method according to claim 17, wherein the humid environment has a relative humidity of at least 70% at a temperature of 20°C.
- 23. (Previously Presented) The method according to claim 22, wherein the humid environment has a relative humidity of at least 80% at a temperature of 30°C.
- 24. (Previously Presented) The method according to claim 17, wherein the filter structure is subjected to the moisture treatment in a batch process.
- 25. (Previously Presented) The method according to claim 17, wherein the filter structure is

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subjected to the moisture treatment in a continuous process.

26. (Previously Presented) The filter structure according to claim 7, wherein the load of ion exchange particles is  $300-1000 \text{ g/m}^2$ .

- 27. (Previously Presented) The filter structure according to claim 26, wherein the load of ion exchange particles is  $400-700 \text{ g/m}^2$ .
- 28. (Previously Presented) The filter panel of claim 12, wherein the pleated filter structure has 5-20 pleats/dm.
- 29. (Previously Presented) The filter panel of claim 28, wherein the pleated filter structure has 8-15 pleats/dm.
- 30. (Previously Presented) The filter panel according to claim 13, wherein the height of the pleats is 15-150 mm.
- 31. (Previously Presented) The filter panel according to claim 30, wherein the height of the pleats is 15-100 mm.
- 32. (Previously Presented) The method according to claim 23, wherein the humid environment has a relative humidity of at least 90% at a temperature of 30°C.

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